



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

BULLETIN
OF THE
TORREY BOTANICAL CLUB

FEBRUARY, 1908

The ferns and flowering plants of Nantucket — I

EUGENE P. BICKNELL

The flora of Nantucket is marked by many features of more than ordinary interest. On this seaward island are plants which, giving expression to their insularity, have come to differ in greater or less degree from their general species. Here, too, are plants scarcely known or, indeed, known not at all elsewhere in this country. Other plants find a place in the flora of New England only by reason of their presence on Nantucket and not a few species here reach the extreme limit of their northward and eastward range or find on this island the boundary of their coastwise extension towards the south. And not in all cases do these outlying points in distribution mark merely the stop to a more or less continuous range. The occurrence of certain species on Nantucket scores a wide leap in regional position, even a separation of as much as several hundred miles or more—in one case over a thousand miles—from the nearest point where the species is elsewhere known.

These noteworthy features in the flora of Nantucket are by no means alone in giving distinction to the botany of the island. Taken as a whole and in its broader aspects the flora is replete with interest. The great abundance and wide dispersal over the island of certain species, some of them not generally common in the same latitude, will scarcely escape the most casual observation, and some of these dominant plants, especially in their flowering season, display themselves in masses and groupings of color which command the eye. Nor will the botanist fail to be impressed by

[The BULLETIN for January, 1908 (35: 1-48, *portrait*) was issued 29 F 1908.]

certain negative characters of the flora, especially the scarcity or entire absence of plants which might well be expected to occur.

The source of our knowledge of the island's general flora has been the catalogue of plants published in 1888 by Mrs. Maria L. Owen. This list brought together the few scattered facts about the botany of Nantucket made known since the first visit of a critical botanist to the island, that of William Oakes in 1829, and further gave permanent record to the discoveries of a much later generation of botanists whose explorations reached all quarters of this territory of some fifty square miles and revealed many unexpected facts. Many competent botanists and collectors thus had their part in adding to the catalogue, among whom Mr. L. L. Dame, Mr. Walter Deane and Judge J. R. Churchill have particular place. A careful study of the aquatics was contributed by Mr. Morong, Doctor C. W. Swan investigated the grasses and sedges, and Mr. F. S. Collins added a detailed report on the algae.

But the knowledge of the flora as a whole, which, twenty years ago, made possible this catalogue of Nantucket plants, was due mainly to the enthusiastic explorations and studies of Mrs. Owen, prosecuted at first, as she tells us, as a young girl and again in after years.

In the long interval since that period, with the remarkable advance it has witnessed in our knowledge of our native plants, little has been published on Nantucket botany and it is now possible to add materially to the original catalogue.

In the department of flowering plants and ferns, which is here alone considered, 656 species and varieties of Nantucket plants were enumerated by Mrs. Owen. With the additions which may now be catalogued, over 950 species can be attributed to the island. It is fully probable, however, that the actual number of flowering plants, ferns, and fern-allies belonging to this flora will be found to be well on towards 1,100, even if this figure be not finally surpassed.

The observations on which the present paper is based were made during four visits to the island as follows: Sept. 10-21, 1899; Aug. 27-Sept. 11, 1904; Aug. 4-16, 1906; Sept. 10-22, 1907. On a casual visit in August, 1889, two species were observed which were not subsequently met with.

It will be seen that my own field work has been prosecuted

only in the late summer and autumn, and there can be not the least doubt that many additional plants, especially among the sedges and grasses, would reward careful exploration in the spring and early summer.

So localized are many of the plants which grow on the island that it is not at all a matter of surprise that they were missed by the earlier explorers. I am well satisfied to believe that many additional species are to be found at the very season of my own explorations. These were carried out in much detail and it is therefore interesting to record that of the species authentically admitted by Mrs. Owen over seventy were not encountered by me. Some of these are without doubt now extinct on the island and others were introduced plants which, it appears, had no permanent foothold. On the other hand, a number of those here added, although now well established, are doubtless newcomers within recent years, while still others are clearly only adventive and may or may not take an established place in the flora.

A particular interest always attaches to the study of an insular flora. Its strictly circumscribed limits make possible some approach to completeness in achieving a knowledge of its entire composition and of apprehending such changes as may be brought about in the course of time. In the interest of comparison in the future it would seem well to express with particularity the status at the present day of each of the species known to occur on the island of Nantucket.

It is to be understood that all references to existing records are to Mrs. Owen's catalogue unless otherwise expressly stated. Additions to this earlier catalogue are denoted by an asterisk.

OPHIOGLOSSACEAE

OPHIOGLOSSUM VULGATUM L.

Border of Tom Never's swamp near the 'Sconset road, Sept. 15, 1907 — a colony of thirty or more plants almost hidden in the surrounding vegetation. The plants showed much variation — from 1.6 to 3.4 dm. in height, the leaves 2.5–6 cm. long, 7–27 mm. wide, lanceolate to elliptic-oblong and ovate-oblong, and with 9–13 basal veins. Some of the smaller plants are suggestive of Mrs.

Britton's *O. arenarium* but are nevertheless unmistakably *O. vulgatum*.

Recorded by Mrs. Owen from Polpis and Sachacha Pond, 1885 and 1886.

BOTRYCHIUM OBLIQUUM Muhl.

Occasional, usually single plants or a few together. Below the "cliff" in white sand with *Ibidium Beckii* and *Lechea maritima*; west of the town; Shawkemo; Quaise; Polpis; Squam. Sometimes under 10 cm. high with leaves only 3-4 cm. wide; largest examples 29 cm. high; ultimate segments of the leaves numerous and crowded, the stalks and their divisions bearing pilose hairs.

Recorded by Mrs. Owen from one station at the south shore in 1860 and from west of the town in 1885.

OSMUNDACEAE

OSMUNDA SPECTABILIS Willd.

Uncommon. Below the "cliff"; south and west of the town; Monomoy; Polpis; Squam.

OSMUNDA CINNAMOMEA L.

Low grounds everywhere; perhaps the most common fern of the island.

OSMUNDA CLAYTONIANA L.

Nothing was seen of this fern. The catalogue reports a single specimen from near Sachacha on the joint authority of Mrs. Owen and Mr. Dame.

POLYPODIACEAE

PTERIDIUM AQUILINUM (L.) Kuhn.

Common throughout; of large size in low thickets at Polpis and Squam.

* *PTERIDIUM AQUILINUM LATIUSCULUM* (Desv.) Underw.

Common. Much of the brake fern of the island is a form appearing more or less intermediate between *aquilinum* and *latiusculum*, but examples fully representative of the latter are common.

LORINSERIA AREOLATA (L.) Underw.

Locally common, especially on the eastern side of the island.

Not seen in the western quarter beyond Trot's Swamp. Much less common than the following.

ANCHISTEA VIRGINICA (L.) Presl.

Common, especially on the eastern side of the island, where in many places it forms a luxuriant growth in bog holes and wet thickets; extends into Saul's Hills. Not seen west of Trot's Swamp.

ASPLENium FILIX-FOEMINA (L.) Bernh.

Uncommon; Rattlesnake Bank; Watt's Run; Saul's Hills, one station; Trot's Swamp. The specimens met with were mostly of moderate size and represent no extreme form of this fern, being quite representative rather of the general species as commonly understood. Professor Underwood, to whom specimens were submitted, concurred in this view. Some examples, however, approach var. *angustum* (Willd.) Moore. As a rule the fronds are oblong-lanceolate or narrower, twice pinnate or nearly so; pinnae close-set to rather widely separated, lanceolate, spreading or ascending; pinnules crowded or well separated, linear to oblong, broadly rounded or slightly narrowed to the apex, serrate or incised, at least basally, with dentate segments; indusium short, little curved. The specimens from Saul's Hills are small and of very delicate texture. On Sept. 5, 1904, their fertile fronds were completely withered, whereas the more typical plant in Trot's Swamp was in perfect condition. Variety *Michauxii* Mett. (= var. *angustum* Moore) and "var. *rhaeticum* Moore" are both mentioned by Mrs. Owen as rare.

DRYOPTERIS NOVEBORACENSIS (L.) A. Gray.

Infrequent and local, but sometimes making an abundant growth. Common in low thickets in Polpis and in parts of Trot's Swamp; Watt's Run; one station in Saul's Hills.

DRYOPTERIS THELYPTERIS (L.) A. Gray.

Everywhere common in low grounds.

* *DRYOPTERIS SIMULATA* Davenp.

Frequent and locally common. Head of Tom Never's Swamp; Saul's Hills; west of Sachacha; common, often of large

size and luxuriant growth in Trot's Swamp and in wet thickets in Squam and Polpis ; cranberry bog thicket near Long Pond.

DRYOPTERIS CRISTATA (L.) A. Gray.

Occasional. Open sphagnum bog by Reed Pond ; near Long Pond ; frequent or even common in Trot's Swamp and in Polpis thickets ; near head of Tom Never's Swamp.

* *DRYOPTERIS SPINULOSA* (Retz.) Kuntze.

Frequent. Common and of luxuriant growth in Trot's Swamp and in boggy thickets about Polpis ; head of Tom Never's Swamp ; small plants on Coskaty.

DRYOPTERIS INTERMEDIA (Muhl.) A. Gray.

Occasional. Common and of large size in Trot's Swamp and in Polpis thickets ; head of Tom Never's Swamp.

* *DRYOPTERIS BOOTHII* (Tuckerm.) Underw.

Near head of Tom Never's swamp ; at several places in Trot's Swamp and in Polpis thickets, always in close association with *D. spinulosa* and *D. cristata*.

* *DENNSTAEDTIA PUNCTILOBULA* (Michx.) Moore.

Low open thicket near Reed Pond, forming a dense growth covering several square yards, Sept. 1907 ; county fair grounds under an old wooden platform ; head of Tom Never's Swamp ; Polpis, in a dense thicket, here, as well as in Tom Never's Swamp, associated with *D. spinulosa*, *D. intermedia*, *D. cristata*, *D. Boothii* and *D. simulata*.

ONOCLEA SENSIBILIS L.

Common throughout.

EQUISETACEAE

EQUISETUM ARVENSE L.

Apparently not very common. On and below the sandy bluff southwest of Wauwinet and on the sandy shore of Hummock Pond a low spreading form pale in color with elongated slender branches and much roughened epidermis.

* *EQUISETUM FLUVIATILE* L.

Sparingly on the muddy border of a pond-hole or sink ringed with a dense thicket of button-bush to the west of the monument marking Tristram Coffin's homestead — Sept. 12, 1907.

LYCOPODIACEAE

LYCOPODIUM ADPRESSUM Underw.

Frequent or rather common in damp open grounds, mostly about the borders of ponds and sandy cranberry bogs. Determined by Professor Underwood.

L. inundatum, *L. var. Bigelovii* Tuckerm. was not met with. The plant recorded under this name in Mrs. Owen's catalogue was doubtless *L. adpressum* which had not at that time been recognized as a species.

* LYCOPODIUM ALOPECUROIDES L.

In abundance about the shores of Tom Never's Pond and in the swamp opposite Bloomingdale, in both localities growing with *Drosera filiformis*; also about some of the ponds in Polpis. Identification confirmed by Professor Underwood.

LYCOPODIUM OBSCURUM L.

Met with only about the head of Clarke's Cove and towards the upper part of Long Pond, in both localities not uncommon. No fruiting plants seen. Reported from Gibbs' Swamp.

LYCOPODIUM COMPLANATUM L.

Monomoy; Acquidness Point; Polpis; open moorland towards the south shore; the Woods; Long Pond, Reed Pond. Less common than *L. tristachyum* and apparently fruiting only sparingly. Neither species was found in the extreme eastern quarter of the island.

* LYCOPODIUM TRISTACHYUM Pursh.

At a number of widely separated localities, sometimes fruiting freely.

ISOETACEAE

ISOETES ECHINOSPORA BRAUNII (Durieu) Engelm.

Reported by Mrs. Owen from Maxcy's Pond on the authority of Mr. Morong. No species of *Isoetes* was met with by me on the island.

PINACEAE

PINUS RIGIDA Mill.

This pine, now the most abundant and conspicuous tree of Nantucket, is said by Mrs. Owen to have all come from seed

planted in 1847 and following years. At one time its existence on the island was thought to be seriously threatened by the ravages of certain insects and the prediction was confidently made that, were not instant and extreme measures adopted for their protection, the Nantucket pines were doomed. This prophecy remains unfulfilled. To-day, although the blight of insect damage presents a dismal spectacle here and there, the pines in the main enjoy a clean and vigorous growth and have grouped themselves into close or open formations which are a very attractive feature of parts of the Nantucket landscape.

At a number of places the trees have achieved dense growths of considerable extent fairly to be described as pine woods. More often they appear in detached or straggling groves of fair-sized trees, thickets of scrub, and scattered young growth. From the pine groves about the middle of the island, outlying trees, mostly 3-5 feet high, extend all the way to the south shore, dotting the level plain for wide distances, their dark forms appearing in sharp definition against the pale stretches of beach grass (*Ammophila*) which cover parts of the plain.

East of Hummock Pond over sandy soil is a wide stretch of mingled close and open growth, strongly suggestive of parts of the New Jersey pine-barrens.

Small solitary trees have sprung up in nearly all quarters of the island, although in the extreme eastern and western sections and along the eastern side of the harbor beyond Monomoy it is nearly or quite wanting. On the eastern side a few stray trees extend towards the Shawkemo Hills, but from these hills across Saul's Hills to Gibbs' Pond and Sankaty one or two small trees only were met with. A few solitary trees were encountered in Shawkemo, none in Quaise nor in Pocomo and only a single small tree in Squam. On the western side of the island a few small trees are to be seen at wide intervals, likewise a few have extended into Madequet where, also, by a farmhouse is a small grove which was evidently planted many years ago. The most western point to which the tree has spread is beyond North Pond, where two trees about six feet high occupy an exposed spot on a high sand dune. These bore several perfectly formed but very diminutive cones, which had every appearance of maturity but were only $\frac{3}{4}$ to 1

inch in length. On some branches the leaves were equally dwarfed; other branches bore both cones and leaves of normal size. On the south side of the island many young trees have sprung up along the abandoned bed of the railroad which ran from the town to Surfside twelve years ago, the tracks having been taken up in the summer of 1895. The largest of these trees has now reached a height of seven feet as nearly as could be estimated without actual measurement.

PINUS SYLVESTRIS L.

Said by Mrs. Owen to have been planted near the head of Miacomet Pond in 1876 together with Scotch larches. There is now near the head of Miacomet Pond some rather extensive pine groves flanked with thickets of European larches, which have evidently long been left to their own undisturbed course of growth, appearing now as a wholly native feature of the vegetation. The prevailing pine of these groves is *Pinus rigida*, but mingled with this native tree are many Scotch pines both scattered and in groups, the larger trees estimated to be fifteen to twenty feet in height. That they have been slowly spreading is shown by smaller outlying trees and occasional seedlings.

These Scotch pines fruit prolifically and include several forms of distinct appearance. One of these bears ovoid cones 3.5–4.5 cm. long, the scales little thickened at the tip or the basal ones becoming umbonate. Another form has larger, narrowly ovoid-conic or tapering cones 5–7 cm. long by 2–2.5 cm. wide, the scales provided with prominent often reflexed processes. With these occurs a smaller tree characterized by very small cones only about 2 cm. long, which, when the scales spread at maturity, become broadly ovoid-subglobose and 2.5 cm. wide; the leaves are 2.5–4 cm. in length. Specimens of this tree agree closely with authentically named sheets of *Pinus Pumilio* Haenke in herb. N. Y. Bot. Garden, the cones appearing identical, although the leaves are more slender.

In 1900 a solitary tree of *Pinus sylvestris* bearing a single ovoid cone was met with in a remote spot west of Sachacha.

LARIX DECIDUA Mill.

Near the head of Miacomet Pond with *Pinus sylvestris* and *Pinus rigida* as described above and fruiting freely. The largest

trees are perhaps not over 8-10 feet in height. A considerable part of the growth is so densely massed together as to form an impenetrable thicket. Smaller trees away from the main body show some tendency of this foreigner to extend its foothold.

JUNIPERUS VIRGINIANA L.

Abundant on Coatue, extending into a long stretch of cedar-barrens towards Great Neck ; scattered trees on the north shore and along the east side of the harbor ; fields south of Squam towards Quidnet and west of Sachacha ; scarce towards the south and southeast and wanting in most of the west and southwest quarters.

TYPHACEAE

TYPHA LATIFOLIA L.

Common. Both this species and *T. angustifolia* sometimes occur about the shores of the same pond, as at Miacomet Pond, but nowhere were the two seen actually growing together.

TYPHA ANGUSTIFOLIA L. Abundant.

SPARGANIACEAE

SPARGANIUM EURYCARPUM Engelm.

Locally common, and fruiting well ; matures earlier than the two following.

SPARGANIUM ANDROCLADUM (Engelm.) Morong. (*S. lucidum* Fernald, *Rhodora* 9 : 87. 1907.)

A considerable and luxuriant growth fruiting abundantly in the northwest side of Maxcy's Pond, 1907. Largest fruiting heads 2.5-3 cm. in diameter ; stigmas 2-4 mm. long. In a small pool east of Maxcy's Pond, which was partly filled with this bur-reed in full flower and fruit August 12, 1904, only a few sterile plants were growing three years later, its place having been taken by a dense growth of *Pontederia*. Recorded from Almanac Pond.

* *SPARGANIUM AMERICANUM* Nutt.

Frequent or common, occurring in nearly all quarters of the island. Much of the fruit was not mature even after the middle of September.

NAIADACEAE

POTAMOGETON OAKESIANUS Robbins.

Common ; not found in flower or fruit.

POTAMOGETON PULCHER Tuckerm.

Occasional or frequent, but scarcely common and not found in flower or fruit. Both this and the foregoing were found in abundant fruit on Nantucket by Mr. Morong in 1887.

POTAMOGETON NUTTALLII Cham. & Sch.

Infrequent ; brook by roadside, Polpis ; Watt's Run. In flower and fruit. Recorded from Maxcy's Pond and from near Sachacha.

POTAMOGETON PERFOLIATUS L.

Common in Long, Hummock, Miacomet, and Washing ponds and fruiting freely. Leaves apparently never of large size, either remote or crowded, broadly ovate or rounded to lanceolate-oblong. Plants frequently small with numerous leaves mostly 10-15 mm. in length and densely fruited spikes only 10 mm. long. Some specimens with remote and unusually narrow leaves suggested an approach to the next.

POTAMOGETON MYSTICUS Morong.

This little-known plant was searched for unsuccessfully around the borders of Miacomet Pond, in which it was found by Mr. Morong in 1887.

POTAMOGETON PUSILLUS L.

Long, Miacomet, and Washing ponds. Fruiting freely in Miacomet Pond, August 11, 1906. Recorded also from Hummock and Reedy ponds.

POTAMOGETON DIVERSIFOLIUS Raf.

Maxcy's Pond ; pool north of Trot's Swamp ; pool on Nantucket golf-links ; fruiting abundantly in September. Often with submersed leaves only. Recorded from Reed Pond.

POTAMOGETON PECTINATUS L.

Abundant in some of the shore ponds, often intermixed with *Ruppia maritima*. In September, 1904, a dense growth of these

two plants covered nearly the entire surface of Capaum Pond and on Sachacha Pond formed a continuous zone around the borders, extending certainly from fifty to one hundred yards out from the shore. In 1907 there was little surface indication of the plants in either pond. Both species fruit freely.

RUPPIA MARITIMA L.

Common in salt and brackish ponds and ditches. In mature fruit in the ponds, September, 1904; in a tidal ditch on Swain's Neck it was just in flower Sept. 17, 1907.

ZANNICHELLIA PALUSTRIS L.

Recorded from Hummock and Miacomet ponds and from Polpis. I did not meet with it.

NAIAS FLEXILIS (Willd.) R. & S.

Found only in a small pool on the north side of Trot's Swamp Sept. 10, 1904, the specimens bearing mature fruit. Recorded by Mrs. Owen only from Long Pond on authority of Mr. Morong.

* *NAIAS GUADALUPENSIS* (Spreng.) Morong. (*N. microdon* A. Br.?)

First detected Sept. 8, 1904, in Miacomet Pond, where fragments were found floating in the shallow water and cast up along the shore with other detached aquatic plants along the eastern border of the pond, the leeward side on that day. The high water roughened by a strong wind made it impossible to detect the rooted plant, nor could it be discovered in actual growth on Aug. 11, 1906, when it was found as before under conditions of wind and water almost the same.

On Sept. 14, 1907, it was discovered growing on the muddy bottom of a shallow inlet of Long Pond at the "Gut," and on Sept. 20th it was again found in Miacomet Pond, this time growing in abundance in mud and mud overlaid with sand in shallow water along the west shore. These ponds extend in a general northeast and southwest direction and each is separated from the ocean on the south shore only by a strip of sandy beach which is probably not always an effectual barrier to the sea. Miacomet is a narrow pond less than a mile long; Long Pond is over three and a half miles in length and nearly bisects the extreme western quarter of the island. The point where this *Naias* was found in

Long Pond was two thirds of a mile from the north shore and over three and a half miles from Miacomet Pond. Midway between these waters is Hummock Pond, which extends nearly three quarters of the distance across the width of the island. Here the plant was not detected although it is reasonable to suppose that it occurs throughout all three of these ponds.

In the latitude of Nantucket *Naias guadalupensis* appears to be unknown east of Nebraska although in the south it extends to west Florida. Its general range is understood to be from Oregon and Nebraska to Florida, Texas, and tropical America.

If not native to Nantucket, it has evidently long been established there and its occurrence at so great a distance from the nearest point of its known range finds no ready explanation. If the plant is susceptible of dissemination by birds, a wider dispersal in the east might be expected. It is also against the probability of its introduction by such agency that at its fruiting season the general course of bird migration is not from the direction of those regions whence the seeds might be brought. It may not be unduly fanciful to suggest the possibility of its chance introduction through the destruction of some vessel from tropic waters among the many shipwrecks which have had their scene on Nantucket shores.

The following description is from the specimens collected : Early becoming dull or brownish-green ; stems 10-30 cm. long, capillary, often procumbent below and rooting at the nodes, the roots elongated and threadlike ; very fragile, widely alternate-branched from the base and decompound, the ultimate divisions 3-7 cm. long ; internodes of main stem 4 cm. or less in length, of the branches 5-20 cm. ; leaves opposite, not at all or but little recurved, pellucid, 5-15 mm. long, 0.75-1.5 mm. wide, linear, not at all or only obscurely narrowed towards the obtuse or abruptly acute apex, minutely sharp-serrulate with numerous teeth ; fruit brownish, 2.5 mm. long to the beaked style, about 1 mm. thick, linear-fusiform, sometimes slightly curved ; style 0.5 mm. long, minutely bifid ; pericarp obtuse at each end and strongly marked with about twenty longitudinal lines of transversely oblong rectangular reticulations ; seed about 2 mm. long, under a strong light somewhat glittering from the varied reflections of the reticulations, linear, slightly narrowed to either end, the ventral side straight, the dorsal slightly curved ; obscurely keeled on the ventral side towards the base.

ZOSTERA MARINA L.

Common at the western side of the island and off the north shore and often cast up along the beaches.

SCHEUCHZERIAACEAE

TRIGLOCHIN MARITIMA L.

Salt marshes at Eatfire and Quaise; abundant along Bache's Harbor; dried spikes only, carpels 3.5–5 mm. long.

ALISMACEAE

ALISMA SUBCORDATUM Raf.

Pool by the railroad near the Orange Street crossing; the colony of plants is a small one and has not increased since 1889, when it was first observed. Near the Creeks, *M. L. O.*

**SAGITTARIA ENGELMANNIANA* J. G. Smith.

Common in wet bogs and about the borders of ponds and showing a much wider variation in size and leaf-form than is allowed for in current descriptions: Lamina of the blade linear to ovate, 1 mm. to over 4 cm. wide, the lobes nearly parallel to widely diverging, 1 mm. to 2.5 cm. wide at base, 3–11 cm. long, tapering to an almost filiform termination. Varies greatly in its flowering period in different seasons, but appears to be generally later-flowering than *Sagittaria latifolia*. In 1904 it was in full flower in the second week of August; in 1906 at the middle of September much of it was only just in bloom; in 1899 flowers and mature fruit were found at the middle of September; in September, 1907, it was in mature fruit and no flowers were seen.

SAGITTARIA LATIFOLIA Willd.

Rare, found only in ditches along a roadway through low grounds west of the town, occurring sparingly but of the largest size. The tallest plants were 1.15 m. high, the largest leaves 1.20 m. in length, their blades 2.75 dm. long by 1.5 dm. wide at the petiole, the terminal portion rounded to broadly acute.

In full flower Aug. 7, 1906; no flowers remaining Sept. 14, 1907.

VALLISNERIACEAE

VALLISNERIA SPIRALIS L.

Common in Hummock and Miacomet Ponds, at the latter in flower and fruit Sept. 14, 1907. Recorded from Long Pond.